

FORM PTO-1590 OFFICE (REV. 10-95)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK		ATTORNEY'S DOCKET NUMBER	
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371				CM1976 U.S. APPLICATION NO. (if known, see 37 CFR 1.5) 09/857958	
INTERNATIONAL APPLICATION NO. PCT/US99/28997		INTERNATIONAL FILING DATE 07 December 1999		PRIORITY DATE CLAIMED 14 December 1998	
TITLE OF INVENTION Duplex Holographic Film					
APPLICANT(S) FOR DO/EO/US VAN GEERT, Peter Maurits et al.					

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information.

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(i).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application was filed (35 U.S.C. 371(c)(2))
 - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ has been transmitted by the International Bureau.
 - c. ☒ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has **NOT** expired.
 - d. ☒ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
 - ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. ☐ A substitute specification.
15. ☒ A change of power of attorney and/or address letter.
16. ☐ Other items or information:

"Express Mail" mailing label number

Date of Deposit **EL 483620473745**
12 June 2001

I hereby certify that this paper(s) being deposited with the United States Postal Service "Express Mail" Post Office to address service under 37 CFR 1.19 on the date indicated above and is addressed to The Assistant Commissioner of Patents, Washington, D.C. 20221.

Administrative Marking Application

Signature

Augustine Boyd

SEND ALL CORRESPONDENCE TO:

Name of Attorney

Registration No.

Signature of Attorney

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Case CM1976

In the Matter of :
US National Phase Entry :
Under 35 USC 371 from :
International Application of :
Van Geert et al., :
Int'l Application No. PCT/US99/28997 : Group Art Unit : N/A
Filed on December 7, 1999 : Examiner : N/A
:

For Duplex Holographic Film

PRELIMINARY AMENDMENT

The Assistant Commissioner of Patents

Washington, D.C. 20231

Dear Sir:

Before computing the fees for entering the captioned International Application into
the US National Phase, please enter the following amendments.

IN THE CLAIMS:

Please delete current claims 1-10 and replace with the following new set of claims 11-20.

- (new) 11. An holographic structure comprising an organic solvent based embossed layer, a metallic layer located onto the embossed layer, and an organic solvent based printing ink layer wherein said printing ink layer and said metallic layer are solely separated by a water solvent based primer.
- (new) 12. A holographic structure as in claim 11, whereby said embossed layer is formed from a lacquer applied to a thermoplastic film.
- (new) 13. A holographic structure as in claim 12, whereby said thermoplastic film is a polyester film.

- (new) 14. A holographic structure as in claim 12, whereby said thermoplastic film is laminated to another thermoplastic film.
- (new) 15. A holographic structure as in claim 11 whereby said metallic layer is an aluminum layer.
- (new) 16. A holographic structure as in claim 11, whereby the said embossed layer comprises an acrylic based lacquer.
- (new) 17. A holographic structure as in claim 11, whereby said printing ink layer comprises a colored ink and a white ink, said colored ink having ethanol as said organic solvent and said white ink having ethylacetate as said organic solvent.
- (new) 18. A holographic structure as in claim 11, whereby said water solvent based primer comprises acrylic compounds.
- (new) 19. A package made from a film laminate comprising a holographic structure as in claim 11.
- (new) 20. A package as in claim 19, whereby each side of said film laminate is made from a thermoplastic material.

Conclusion

Support for these amendments is found in the claims and specification as originally filed. These amendments are entered to bring the claims into conformance with 37 CFR §1.75; no new matter is added.

Respectfully submitted,

By


C. Brant Cook
Attorney for Applicant(s)
Registration No. 39,151
(513) 627-8150

1 Rec'd PCT/PTO 12 JUN 2001

DUPLEX HOLOGRAPHIC FILM

5

Technical field

The invention relates to a film structure for a holographic film.

10

Background of the invention

15

Holographic films are used more and more widely, particularly in the packaging of consumer goods. In an holographic structure, an embossed layer is covered with a metallic layer. This has the advantage of providing a three dimensional structure effect which is catching to the eye. However, this often requires redesign of the whole film structure, particularly due to the fact that the metallic layer is not a thermo-plastic layer but a thin metallic layer.

20

25

The present invention concerns an holographic structure comprising an organic solvent based embossed layer, a metallic layer located onto the embossed layer, and an organic solvent based printing ink layer.

30

Among the advantages of such a structure is the eye-catching effect which can be obtained by the combination of holographic techniques and the holographic techniques.

While having this and other advantages, such structures, particularly when integrated into laminated film structures, have

disadvantages. For example, a typical film structure will comprise the organic solvent based lacquer printed or applied, prior to embossement, onto a first side of a polyester (PET) film, typically a 12µm thick film. Once this lacquer is applied to this PET film, it is embossed so as to produce the holographic pattern. Once embossed, a metallic layer, typically aluminium, is vaporised or applied in another manner onto the embossed lacquer to form the "holographic core". The PET side which is not covered by the embossed lacquer can be thereafter laminated to other films, for example a 180 µm thick PE poly-ethylene film. Once this is done, printing can occur. However, it was found that direct printing onto the metallic layer was leading to dissolution of the embossed layer by penetration of the ink solvents through the thin metallic layer.

However, all these film structure are showing dissolution of the embossed lacquer due to ink solvent going through the metallic layer.

The invention seeks to provide an holographic structure of the above mentioned kind which does not lead to dissolution of the embossed lacquer.

Summary of the invention

In accordance with the invention, this object is accomplished in a holographic structure of the above mentioned kind in that the printing ink layer and the metallic layer are solely separated by a water solvent based primer.

A process in accordance with the invention has a number of advantages. Since the metallic layer and the printing ink layer are

separated by the water solvent based primer, migration of the organic solvent from the ink layer to through the water solvent based primer is prevented, as the organic solvent was found not to migrate through a water solvent layer. Therefore, dissolution of the embossed lacquer by migration of the organic solvent present in the ink layer is avoided.

Detailed description of the invention

The invention relates to an holographic structure. By an holographic structure, it should be understood that the structure is exhibiting a three dimensional eye-catching impression based on the metallisation of an embossed layer. Indeed, according the holographic structure comprises an organic solvent based embossed layer. By organic solvent based, it should be understood that the layer is applied together with a solvent, for example by a printing technique, the solvent being organic. The layer is embossed by processes already known by the man skilled in the art of making holograms. Typically, embossement is obtained by application of a pressure onto the layer, so as to produce the pattern which will exhibit the holographic effect. This holographic effect is produced in combination with the metallic layer located onto the embossed layer. Typically, this metallic layer is an aluminium layer, which is applied by vaporisation, thereby giving a thickness of a few atomic layers. Further, the holographic structure comprises an organic solvent based printing ink layer. This layer may comprise one or more inks having various colours, these being typically applied by the usual printing techniques together with a solvent, which is an organic solvent in the structure of the invention. It should be mentioned that an organic solvent should be understood as being non aqueous. Additionally, the printing ink layer and the metallic layer

are solely separated by a water solvent based primer. By solely separated, it should be understood that no laminated layers are to be found between the printing ink layer and the metallic layer. It is necessary that the primer is water-based so as to prevent migration of the solvent from the inks into the embossed layer through pin-holes which usually are present in the thin metallic layer. Indeed, migration of organic solvents through the metallic layer was found to dissolve the embossed layer. It should be understood that the primer could comprise several layers itself, although such layers should not be laminated but applied together with a water based solvent.

In a preferred embodiment, the embossed layer is formed from a lacquer applied to a thermoplastic film, the thermoplastic film being preferably a poly-ethylene-terephthalate film. In a more preferred embodiment, this thermoplastic film is laminated to another thermoplastic film, such as a polyethylene film for example.

In the most preferred embodiment according to the invention, the embossed layer is an acrylic based lacquer which is deposited on a 12 μm polyester film using toluene, butyl acetate or ketones as an organic solvent. This embossed layer is thereafter covered with an aluminium layer, which is itself covered with the water solvent based primer which is an aqueous based acrylic, as in a preferred embodiment whereby the water solvent based primer comprises acrylic compounds. The primer is therefore forming a barrier to the migration of the organic solvents comprised in the printed ink layer which is applied onto the primer. In this most preferred embodiment, a white ink and colored inks are printed, the white ink having an ethyl-acetate solvent and the coloured inks having an ethanol solvent. Indeed it was found preferable to

use different organic solvents for the ink in order to avoid dissolution of a first ink when a second ink is applied. Indeed, in a preferred embodiment, the printing ink layer comprises a coloured ink and a white ink, the coloured ink having ethanol as an organic solvent and the white ink having ethyl-acetate as an organic solvent. A two-components lacquer is then applied onto the printed ink layer to protect the ink. The side of the PET film which is not covered by the embossed layer is then laminated to a 180 μm polyethylene film. A package made from this film laminate comprising an holographic structure according to the invention allows to avoid dissolution of the embossed layer while maintaining the holographic appearance. Further, this package revealed to be suitable for use as a refill pouch for laundry product when made according to the process described in EP626319. Further, this package can be used to contain up to 3 liters of liquid laundry product, filling occurring at normal production speed, without need for an enlarged head space as would be needed in case of a thicker and more rigid film. Another package is foreseen, whereby each side of the film is made from a thermoplastic material. This may be achieved by applying an extra thin layer of polyethylene, such that both sides of the film could be thermo-sealed. Such a package is particularly well suited for granules laundry products packaging.

WHAT IS CLAIMED IS:

1. An holographic structure comprising an organic solvent based embossed layer, a metallic layer located onto the embossed layer, and an organic solvent based printing ink layer characterised in that the printing ink layer and the metallic layer are solely separated by a water solvent based primer.
2. A structure as in claim 1, whereby the embossed layer is formed from a lacquer applied to a thermoplastic film.
3. A structure as in claim 2, whereby the thermoplastic film is a polyester film.
4. A structure as in claim 2, whereby the thermoplastic film is laminated to another thermoplastic film.
5. A structure as in claim 1, whereby the metallic layer is an aluminium layer.
6. A structure as in claim 1, whereby the embossed layer is an acrylic based lacquer.
7. A structure as in claim 1, whereby the printing ink layer comprises a coloured ink and a white ink, the coloured ink having ethanol as an organic solvent and the white ink having ethyl-acetate as an organic solvent.
8. A structure as in claim 1, whereby the water solvent based primer comprises acrylic compounds.

9. A package made from a film laminate comprising an holographic structure as in claim 1.

5 10. A package as in claim 9, whereby each side of the film is made from a thermoplastic material.

00
35
66
2
8
9
9
7
P
C
T
/
U
S
9
9
/

DECLARATION COMBINED WITH POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

"Duplex Holographic Film"

bearing the above listed Procter & Gamble Company Case number, the specification of which was filed as PCT/US99/28997, designating at least the United States of America, with the United States Receiving Office on 07 December 1999.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37 Code of Federal Regulations §1.56.

I hereby claim foreign priority benefits under Title 35 United States Code §119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application for patent or Inventor's certificate having a filing date before that of the application on which priority is claimed:

PRIOR FOREIGN APPLICATION(S) TO WHICH WE CLAIM PRIORITY:

98870270.0

EPO

14 December 1998

I hereby claim the benefit under Title 35 United States Code §120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35 United States Code §112, I acknowledge the duty to disclose material information as defined in Title 37 Code of Federal Regulations §1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

_____ (Appln. Serial No.)	_____ (Filing Date)	_____ (Status)(patented, pending, abandoned)
_____ (Appln. Serial No.)	_____ (Filing Date)	_____ (Status)(patented, pending, abandoned)

I hereby appoint the following as my attorney(s) or agent(s) with full power of substitution to prosecute this application and transact all business in the Patent and Trademark office connected therewith:

<u>Name</u>	<u>Registration No.</u>	<u>Associate Power</u> <u>of Attorney Attached</u> [] Yes [] No
Jacobus C. Rasser	37,043	
Donald E. Hasse	29,387	
T. David Reed	32,931	
Eileen L. Hughett	34,352	
Timothy B. Guffey	41,048	
Emelyn L. Hiland	41,501	

SEND CORRESPONDENCE TO:

T. David Reed, c/o The Procter & Gamble Company			(513) 627-7025
Name			Phone No.
5299 Spring Grove Avenue	Cincinnati	Ohio	45217-1087
Street	City	State	Zip Code

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of sole or first inventor: 1-00 VAN GEERT, Peter Maurits Maria
Inventor's signature: [Signature] Date: December 20, 1999
Residence: Potaardestraat 75, B-1950 Kraainem, BE
Citizenship: BE
Post Office Address: Potaardestraat 75, B-1950 Kraainem, Belgium BEX

Full Name of second joint inventor, if any: 2-00 ETESSE, Patrick Jean-François
Inventor's signature: [Signature] Date: December 20, 1999
Residence: 40 Rue Nothomb, B-1040 Brussels, BE
Citizenship: FR
Post Office Address: Procter & Gamble Eurocor N.V.
100 Temselaan, B-1853 Strombeek-Bever, Belgium BEX

Full name of third joint inventor, if any: _____
Inventor's signature: _____ Date: _____
Residence: _____
Citizenship: _____
Post Office Address: _____

Full Name of fourth joint inventor, if any: _____
Inventor's signature: _____ Date: _____
Residence: _____
Citizenship: _____
Post Office Address: _____

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the U.S. National Phase Entry
Under 35 USC 371 from
International Application of
VAN GEERT, Peter Maurits et al.
Int'l. Application No. PCT/US99/28997
Filed in the RO/US on 07 December 1999
Entitled: *Duplex Holographic Film*

ASSOCIATE POWER OF ATTORNEY

Assistant Commissioner for Patents
Box PCT
Washington, D.C. 20231

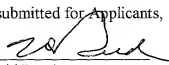
Dear Sir:

You are requested to recognize K. W. Zerby (Registration No. 32,323), B. M. Bolam (Registration No. 37,513), F. C. Turner (Registration No. 39,863), C. B. Cook (Registration No. 39,151), M. Dressman (Registration No. 42,498), and R. S. Echler, Sr. (Registration No. 41,006) of The Procter & Gamble Company, Cincinnati, Ohio, as Associate Attorneys to prosecute this application, to make alterations and amendments therein, and to transact all business in the Patent Office connected with the application or with the patent granted thereupon.

Please address all future communications to:

J. Taffy, Patent Attorney
Customer Number 27751

Respectfully submitted for Applicants,

By 
T. David Reed
Agent for Applicant
Registration No. 32,931

Cincinnati, Ohio
08 June 2001
(513) 627-7025/FAX 627-6333

TELETYPE UNIT